

Old Norse, and Anglo-Saxon; or his explanation (p. 184) of the reason for keeping cattle in herds.

For instruction we may turn to such chapters as those on the "Revival of a primitive fauna," on "West coast meteorology," or on "Assisted vision." Some of the pleasantest reading is to be found in the pages which give the results of the author's out-of-door observation. Here, for example, is a note on the enmity between bees and butterflies:—

"All kinds of stonecrop possess peculiar attractions for bees and butterflies owing to their abundant secretion of honey. One of the tall growing kinds, *Sedum spectabile*, is by far the handsomest. It is the latest to flower, and its great, flat, rosy corymbs are irresistible to that splendid autumn butterfly, the Red Admiral. . . . I have been watching a number of these robust insects busy on the large stonecrop—so busy as to allow me to use a lens on them. There were no less than sixteen Admirals at work on one group of *Spectabile* stonecrop. The honey bees, however, interfered with them, and it was curious to see how shrewdly a Red Admiral would sheer off at the approach of a bee of less than one-tenth of his own bulk. . . . Now, how do butterflies learn to dread a bee? How do they know that bees are armed? It can hardly be by experience, for no butterfly could survive the stab of a bee's sting. It is part of the mystery enveloping the intelligence of animals not personally educated by their parents. . . . The phases of insect life—the egg abandoned by the parent, the stages of larva, pupa, and imago—seem specially calculated to interfere with hereditary knowledge, and to prohibit the communication of instruction. . . . This avoidance of bees by butterflies seems to be an instance of pure instinct."

On another page, in the course of some remarks on the choice of food by animals, the author alludes to the fact that some creatures will thrive upon plants which to others are poisonous, and instances the case of the Spurge Hawk Moth (*Deilephila euphorbiæ*), of which the caterpillar feeds exclusively on the Sea Spurge, although this plant secretes an acrid juice "so painfully poisonous that it is difficult to imagine a digestive apparatus competent to deal with it." He might have mentioned the still more curious case of the caterpillar of another moth, *Deiopeia pulchella*, which feeds on the virulent poison contained in the seed of the Esere or "Ordeal Bean" of Old Calabar (*Physostigma venenosum*), and is unaffected by it (cf. Dr. T. R. Fraser, *Ann. Mag. Nat. Hist.*, May 1864).

We should like to know the authority for the statement (p. 141) that in the lines from the "Midsummer Night's Dream" (So doth the woodbine the sweet honeysuckle gently entwine), Woodbine means the Bittersweet or Deadly Nightshade. This interpretation appears to have the sanction of Dr. Prior in his "Popular Names of British Plants," but is opposed to the view of Canon Ellacombe, who has made a special study of the "Plant-lore of Shakespeare."

We have noted other passages on which criticism might be offered did space permit; but enough has perhaps been said to indicate the scope of the volume. While too much in the nature of a scrap-book to entitle it to praise as a literary effort, it has the merit of being distinctly entertaining, and of conveying in a light, pleasant style a variety of information on subjects of more or less interest.

NO. 1464, VOL. 57]

OUR BOOK SHELF.

Notes on Micro-organisms Pathogenic to Man. By Surgeon-Captain B. H. S. Leumann, Indian Medical Service. Pp. 96. (London: Longmans, Green, and Co., 1897.)

THIS compact and well-written little volume does not make any pretensions to be a text-book in the ordinary sense of the word, and we should be sorry if the "students and practitioners" for whom it is intended should in their turn make any pretensions to a knowledge of the subject after its perusal. Indeed, students and practitioners "who have no opportunity of working at the subject themselves, or time to read a larger book," had better remember the old adage, a little learning is a dangerous thing. Bacteriology, unfortunately, suffers at the present time from the idea that it is essentially a popular science—that it is a subject well within the comprehension and well within the grasp of any one who chooses to hold out his hand for it. Thus we too frequently find it taken up by totally unqualified persons, and the results of their recondite researches serve to bring the whole domain of microbes into disrepute. We do not quarrel with Surgeon-Captain Leumann's little book, for it is clearly and concisely written, and makes every endeavour to be accurate and up to date; and of particular interest is the local colouring, if we may use such an expression, which characterises it in dealing with the most recent work in India on plague and cholera. We have no desire to depreciate these notes, but we do regret that the author encourages the practice of reading about bacteria instead of working at them in a class of professional men who ought certainly to be able to do something more substantial than talk about them. Bacteriology to be of any value must be studied in the laboratory; and without a practical acquaintance with micro-organisms, the latest and most exhaustive manual "made in Germany" will fail to do more than acquaint the reader with the superficial phraseology of the subject.

The Winter Meteorology of Egypt and its Influence on Disease. By H. E. Leigh Canney, M.D. (Lond.), &c. Pp. 72. (London: Ballière, Tindall, and Cox, 1897.)

TO people who, for health's sake, pass the winter in Egypt, and to practitioners who wish to know the climatic conditions of the various health resorts of the country, this book will be an invaluable possession. The volume comprises a paper read before the Royal Meteorological Society last December, and one read before the recent International Congress of Medicine at Moscow. The first of these papers contains the results of a series of meteorological observations made under precisely comparable conditions during three or four winters in Egypt. The stations at which observations were made were Cairo, Mena Honse, Helouan, Luxor, Assouan, Valley of the Tomb of the Kings, and the crest of the Libyan Hills. As self-recording thermometers and hair-hygrometers were used at each station, valuable data were obtained on the diurnal variation of temperature and humidity. It appears from the discussion of the observations that the climate of Egypt is influenced by the Libyan or Western Desert, the Mediterranean Sea, and the extent of cultivated land.

The second part of the treatise provides the medical profession with a valuable guide to the therapeutic influences of the climates of different health stations in Egypt. Practitioners who have not been able to visit the country will find this section most serviceable.

Appended to the volume are several clear and instructive diagrams showing, for the six months from November 1895 to April 1896, the temperature and relative humidity at various hours of the day at Helouan, Mena Honse,

Luxor, and Assouan; the drying power of the air at the temperature of the air; and the drying power of the air at the temperature of the body.

Les Fours Électriques et leurs Applications. By Ad. Minet. Pp. 178. (Paris: Gauthier-Villars et Fils; Masson et Cie.)

ALL thermo-electric effects in which electricity is the prime agent are regarded by the author as coming within the scope of the title of this book, the grounds being that all forms of apparatus for converting electrical energy into heat, come under the generic head of *fours électriques*. The book thus includes not only descriptions of electric furnaces in which temperatures approaching four thousand degrees are reached, but also of simple conductors and resistance coils raised a few degrees above the temperature of the atmosphere by the electric current. The first part of the volume is devoted to an account of the heating effects of electricity; it includes descriptions of the heat produced by a current passing through a metallic resistance, the maximum temperatures of conductors, and electric heating generally. The remaining three parts deal with the electric arc and arc-carbons of various forms, electric furnaces and their applications, and carbide of calcium and acetylene.

It will thus be seen that portions of the book are not exactly pertinent to the title, nevertheless they assist the reader to a clear understanding of electro-thermal phenomena. The section on electric furnaces is a concise account of the various forms of furnace devised for different purposes.

The book belongs to the *Encyclopédie scientifique des Aide-Mémoire* series edited by M. Léauté.

Bibliography of X-Ray Literature and Research (1896-1897); being a Ready Reference Index to the Literature on the Subject of Röntgen or X-Rays. Edited by Charles E. S. Phillips. With an Historical Retrospect, and a chapter of "Practical Hints." Pp. xxxvii + 68. (London: The Electrician Printing and Publishing Co., Ltd.)

THE work before us gives, in a handy and succinct form, a good deal of information respecting the literature of X-rays. The subject proper of the volume is prefaced by a brief historical retrospect, in which, however, the average worker in physics will find little but what is already known to him, and a short chapter of practical hints intended "to appeal more especially to physical students about to turn their attention to high vacua research." The main and most valuable portion of the book is the bibliography, and this should certainly prove of utility to investigators in this branch of science. The volume, so far as we have been able to test it, appears to have been compiled with great care, and certainly a mass of useful knowledge is here gathered together in a form easy of reference.

Die Meteoriten in Sammlungen und ihre Literatur, nebst einem Versuch den Tauschwert der Meteoriten zu bestimmen. Von Dr. E. A. Wülfing. Pp. xlv + 460. (Tübingen: Laupp, 1897.)

THE author has sought information relative to the meteorite collections, public and private, from those in charge of them, and has collated and indexed the results in the form of an alphabetical list, giving for each preserved meteorite a statement of the date of fall or find, a list of the more important memoirs relating thereto, and the weights preserved in the various collections. The work has been carefully done, and will be very useful to collectors of these extra-terrestrial bodies. As regards the pecuniary values to be assigned to the meteorites, we are afraid that the dealers will eschew all such mathematical calculations as are suggested by the author, and will in each case get, as heretofore, what they can.

NO. 1464, VOL. 57]

LETTERS TO THE EDITOR

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Rediscovery of the Tile-fish ("Lopholatilus").

I AM indebted to Dr. John Murray for drawing my attention to an error in the address which I had the honour of delivering before the Linnean Society on May 24. In referring to the discovery and subsequent remarkable disappearance of the Tile-fish (*Lopholatilus chamaeleonticeps*), I stated that since the year in which the extraordinary mortality in this species had been observed (1882), "no specimen of the fish has ever been found."

I must take an early opportunity of correcting this error, which I might have easily avoided by reading more carefully the concluding paragraphs of Goode and Beane's account of the Tile-fish in "Oceanic Ichthyology," p. 288, from which I may be allowed to quote as follows:

"In the fall of 1892, Colonel Marshall McDonald, the Commissioner of Fisheries, made another attempt to discover the fish, and was successful, obtaining it from the following stations [five stations are enumerated, on which eight specimens were caught]. The Tile-fish then is restored to the list of existing species of our North Atlantic coast, and it is probable that in time it may attain to its former abundance. The temperature-investigations made by Colonel McDonald have been carefully discussed by him, and he is convinced that the destruction of *Lopholatilus* was due entirely to climatic causes."

What these climatic causes are we learn from a report by Prof. William Libbey, jun., published in the U.S. Fish Commission Report for 1893 (Washington, 1895, 8vo), p. 32; they consist in a variation of the relations of the Gulf Stream to the Labrador current, affecting the temperature of a certain area inhabited by the fish. A lowering of the temperature by the latter current is believed to have caused the sudden mortality, whilst a subsequent invasion of warm Gulf Stream water would allow the fish to gradually reoccupy the depopulated area.

Kew Gardens, November 14.

A. GÜNTHER.

The Exploration of the Air by Means of Kites.

THE highest kite ascent, described in NATURE of October 7, was in turn exceeded here by more than 1800 feet on October 15, when excellent meteorological traces (of which a facsimile is enclosed) were brought down from a height of 11,086 feet above Blue Hill. The flight was effected with only four kites, and the ascent and descent occupied but four and a half hours. Excepting a more rapid decrease of temperature with increase of elevation, the results agree with those already stated for the previous high flight.

I now desire to call attention to the fact that the deductions from our automatic records obtained with kites seem to confirm, in general, the conclusions reached by Messrs. Welsh and Glaisher from their observations in free balloons many years ago in England. For example, we find also that the most rapid decrease of temperature with height occurs usually in the lower mile of air during the daytime, and, even with no visible clouds, that damp strata often exist in the dry air of the upper regions. A discussion by Mr. Clayton of more than one hundred meteorological records, obtained with kites since 1894, is now in the press, and will form an appendix to Part i. vol. xlii. of the *Annals of the Astronomical Observatory of Harvard College*.

A curious illustration of how identical methods sometimes may serve diametrically opposed investigations, is the application of the deep-sea sounding apparatus of Sir William Thomson (now Lord Kelvin) to bring down these aerial soundings.

A. LAWRENCE ROTCH.

Blue Hill Meteorological Observatory, November 1.

Lord Rayleigh's Proof of Van 't Hoff's Osmotic Theorem.

IN what follows I shall understand by "Van 't Hoff's Osmotic Theorem," the statement, that if P , V be the osmotic pressure and volume of unit mass of a solute, and p , v the gas-pressure and volume of the same mass of the same substance supposed gaseous at the same temperature, then $pV = PV$.